REMARKS

Applicant respectfully requests reconsideration of the present application based on the foregoing amendments and the following remarks. Applicant(s) herein amend the specification and claims 1, 5, 9 and 14, cancels claims 10-13 and 15 and adds claims 16-19. Upon entry of this amendment, claims 1-9, 14 and 16-19 will be pending in the application.

Objections to the Drawings

The drawings stand objected to under 37 CFR 1.84(p)(5) for various identified inconsistencies with the specification. Each of the inconsistencies noted in the Office Action are addressed below.

The specification has been amended at page 7 line 12 to change "FIG. 7" to –FIG. 1--.

The specification has been amended at page 7, line 20 and page 8, line 20 to indicate the corresponding descriptions for element 645 shown in FIG. 1.

The specification has been amended at page 8, line 16 to indicate the corresponding description for element 650 shown in FIG. 1.

The specification has been amended at page 8 line 14 to change "FIGs. 8A and 8B" to –FIGs. 2A and 2B--.

Contrary to the Office Action, all the elements from Figures 4, 5, 7, 8A and 8B were already described in the specification.[1] Nevertheless, the specification has been amended to more clearly correspond those figures and elements with their descriptions in the specification.

Accordingly, Applicants respectfully submit that the objections to the drawings have been overcome and should be withdrawn.

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[1] In the specification, the elements shown in flowcharts are preceded with the letter "S" to denote a step in a process. If the Examiner requires the letter "S" to be removed from each element description in the specification, Applicants request the opportunity to file a supplemental amendment and/or substitute specification to make such a global change, which will involve over a dozen pages of text and many dozens of text changes. Applicants would prefer to not amend the drawings to make text changes.

Objections to the Specification

The specification stands objected to for errors in the related applications section. It has been corrected as suggested in the Office Action, and so this objection should be withdrawn.

Same Invention Double Patenting

Claims 10-13 and 15 are claiming the same invention as claims 9-12 and 14 of U.S. Pat. No. 6,888,838 ("the '838 Patent"). Applicants believe that the Office Action should have referred to claims 3-7 of the '838 Patent rather than claims 9-12 and 14 of the '838 Patent. Nevertheless, claims 10-13 and 15 have been canceled herewith, rendering the rejection moot.

Obviousness Type Double Patenting

Claims 7 and 8 stand rejected under the non-statutory doctrine obviousness-type double patenting over claims 6 and 7 of the '838 Patent in view of Gupta et al., "Routing Lookups in Hardware at Memory Access Speed" ("Gupta"). Applicants believe that the Office Action should have referred to claims 1 and 2 of the '838 Patent rather than claims 6 and 7 of the '838 Patent for this rejection. Nevertheless, a terminal disclaimer is submitted herewith, thereby obviating the basis for this rejection.

Claim Rejections Under 35 U.S.C. 102(b)

Claims 1-6, 9 and 14 stand rejected under 35 U.S.C. 102(b) as being anticipated by Gupta. For reasons set forth more fully below, this rejection is respectfully traversed.

Gupta Does Not Teach Storing Prefix Length Information Together With Next Hop Information

Independent claim 1 (with similar subject matter in independent claims 5, 9 and 14), requires lookup tables that store entries having "next hop **and prefix length information**." An advantage of storing prefix length information in addition to next hop information is that it facilitates updating the lookup table with new route information. (see the present specification at, for example, page 8, lines 3-5).

Gupta merely describes a 24/8 route lookup data structure such as that described in the Background section of the present application at page 4, lines 19-22. The first 24 bits of the IP

destination address are used as an index to a first lookup table (TBL24), and the remaining 8 bits are used as an offset into a second lookup table (TBLlong) if the route info is longer than 24 bits. The second table always has 256 entries for each corresponding prefix identified in TBL24 as needing a further lookup.

Notably, however, Gupta does not describe storing prefix length information in an entry together with next hop information as required by each of the independent claims. As Gupta explicitly states at 1242, column 1: "Note that because **we are simply storing the next-hop in each entry** of the second table, it need be only 1 byte wide (if we assume that there are fewer than 255 next-hop routers . . .)."[2]

For at least these reasons, the rejection of independent claims 1, 5, 9 and 14 patentably define over Gupta and the § 102 rejection of these claims, together with dependent claims 2-4 and 6, should be withdrawn.

Gupta Does Not Describe Storing Bitmaps In Route Lookup Tables As Required By Claim 5

Independent claim 5 further requires a first lookup table having an entry with "a bitmap portion and an information storage portion," which entry is "indexable by a first portion of an IP destination address, and bits within the bitmap . . . are indexable by a second portion of the IP destination address." This claim allows for route table compression as described in the specification beginning at page 12, line 13 for example. (in that example, the T2_RIB table corresponds to the claimed "first lookup table").

Gupta does not describe a first level lookup table that has bits within bitmaps that are indexable with a portion of an IP address as required by claim 5.

For at least this additional reason, claims 5 and 6 further patentably define over Gupta.

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[2] Gupta's Figure 4 is perhaps misleading because the illustrated "Key to table entries" may give an impression that route/prefix info such as "10.54/16" is stored in the table. However, this is clearly not next hop information that is required for routing (which would be an ID of a next hop router, not route info), and Gupta otherwise makes clear that **only** next hop information is stored. Properly interpreted, the entries "A, B and C" in Figure 4 are the next hop router IDs corresponding to the shown routes.

Gupta Does Not Teach Storing A Variable Value K That Is Used To Determine An Offset Into A Group Of 2^K Entries

Each of the independent claims has been amended to require lookup tables that include a **variable value K** which determines an offset into a group of entries in another lookup table storing next hop and prefix information for a set of IP addresses.

For example, claim 1 requires:

> the information storage portion of each of the at least one entry in the first lookup table stores a variable value K and a separate and distinct value pointing to a block in the at least one block of entries in the second lookup table when there is a route having a prefix matching the index of the entry and a prefix length greater than the predetermined value, and
> each entry in the block is indexable by an offset of the IP destination address, the offset having a second number of K bits that is less than or equal to the total number of bits less the first number of bits, the size of the block thereby being a variable size of 2^K entries.

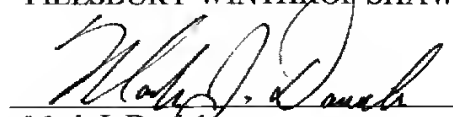
An advantage of this subject matter is that the size of the lookup tables can be reduced even further, and can be adjusted for different routes. Accordingly, the claims define over Gupta for at least this additional reason, and the 102 rejection of the claims should be withdrawn.

Conclusion

All objections and rejections having been addressed, and in view of the foregoing, the claims are believed to be in form for allowance, and such action is hereby solicited. If any issues remain which the Examiner feels may be resolved through a telephone interview, s/he is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
PILLSBURY WINTHROP SHAW PITTMAN LLP

Date: September 5, 2006



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